

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for the production of linear alkanes containing less than 6 carbon atoms ~~which comprises putting~~ comprising contacting a mixture comprising one or more hydrocarbons containing at least 6 carbon atoms, in presence of hydrogen, ~~in contact~~ with a catalytic composition comprising:

a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, metals of group VIII Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt,

b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,

with the exclusion of a catalytic composition comprising at least one lanthanide, at least one metal belonging to group VIII and a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B when the mixture treated is a mixture containing aromatic compounds.

Claim 2 (Currently Amended): The process according to claim 1, wherein the mixture comprises one or more hydrocarbons containing at least 6 carbon atoms, selected from the group consisting essentially of aromatic compounds, open-chain alkanes, [[or]] alkanes with cyclic structures, alkenes having one or more unsaturations with open chains [[or]] and alkenes with cyclic structures having one or more unsaturations.

Claim 3 (Currently Amended): The process according to claim 2, wherein the mixture comprises one or more hydrocarbons selected from the group consisting essentially

of open-chain alkanes, ~~[[or]]~~ alkanes with cyclic structures, open-chain alkenes having one or more unsaturations and alkenes with cyclic structures having one or more unsaturations.

Claim 4 (Currently Amended): The process according to claim 2, wherein the mixture contains aromatic compounds ~~[[and]]~~ is ~~put in contact~~ contacted with a catalytic composition comprising:

a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, metals of group VIII,

b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,

with the exclusion of a catalytic composition comprising at least one lanthanide, at least one metal belonging to group VIII and a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B.

Claim 5 (Currently Amended): The process according to claim 4, wherein the mixtures containing aromatic compounds are ~~put in contact~~ contacted with catalytic compositions essentially consisting of:

a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, metals of group VIII,

b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B.

Claim 6 (Currently Amended): The process according to claim 1, wherein the catalytic composition comprises:

- a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, metals of group VIII, Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt,
 - b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,
 - c) one or more lanthanides,
- with the exclusion of a catalytic composition comprising at least one lanthanide, at least one metal belonging to group VIII and a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B when the mixture treated is a mixture containing aromatic compounds.

Claim 7 (Currently Amended): The process according to claim 6, wherein mixtures containing aromatic compounds are ~~put in contact~~ contacted with catalytic compositions containing:

- a) at least one element selected from the group consisting essentially of Mo, Cu, Ga, In, W, Ta, Zr, Ti,
 - b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,
 - c) one or more lanthanides,
- with the exclusion of a catalytic composition comprising at least one lanthanide, at least one metal belonging to group VIII and a zeolite selected from Y-zeolite and Y-zeolite

modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B.

Claim 8 (Currently Amended): The process according to claim 7, wherein the catalytic composition essentially consists of:

- a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti,
- b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,
- c) one or more lanthanides.

Claim 9 (Original): The process according to claim 1, wherein the zeolite is Y-zeolite.

Claim 10 (Original): The process according to claim 1, wherein the zeolite is partially in acidic form.

Claim 11 (Original): The process according to claim 9, wherein the molar ratio $\text{SiO}_2/\text{Al}_2\text{O}_3$ in the zeolite ranges from 3 to 400.

Claim 12 (Currently Amended): The process according to claim 11, wherein the molar ratio between silicon oxide and aluminum oxide ~~preferably ranges~~ is from 5 to 50.

Claim 13 (Currently Amended): The process according to claim 1, wherein the Me is selected from the group consisting essentially of Pt, Pd, Ti, Zn, Mo, Cu, Ni, Zn/Mo, Cu/Zn, Pd/Ti and Ni/Mo.

Claim 14 (Original): The process according to claim 13, wherein the catalytic compositions contain Y-zeolite and Pd, Y-zeolite and Pt, Y-zeolite and Ni, Y-zeolite and Zn, Y-zeolite and Mo, Y-zeolite and Zn together with Mo, Y-zeolite and Zn together with Cu, Y-zeolite and Pd together with Ti, Y-zeolite and Mo together with Ni.

Claim 15 (Original): The process according to claim 6, wherein the catalytic compositions contain Y-zeolite and La together with Zn and Mo, Y-zeolite and La together with Zn and Cu.

Claim 16 (Original): The process according to claim 1, wherein the element Me is present in the catalytic composition in the form of an oxide, ion, metal or a mixture of these forms.

Claim 17 (Currently Amended): The process according to claim 1, wherein Zn, Mo, Cu, Ga, In, W, Ta, Zr or Ti are in a quantity ~~varying~~ from 0.1 to 50% by weight with respect to the total weight of the catalytic composition.

Claim 18 (Currently Amended): The process according to claim 17, wherein the quantity of the element Me ~~varies~~ is from 0.5 to 30% by weight.

Claim 19 (Original): The process according to claim 1, wherein the metal belonging to group VIII is in a quantity ranging from 0.001 to 10%, by weight.

Claim 20 (Currently Amended): The process according to claim 19, wherein the metal of group VIII is in a quantity ~~varying~~ from 0.1 to 5% by weight with respect to the total weight of the catalytic composition.

Claim 21 (Original): The process according to claim 6, wherein the lanthanide is lanthanum.

Claim 22 (Original): The process according to claim 6, wherein the lanthanide is in the form of an oxide, ion or a mixture of these forms.

Claim 23 (Currently Amended): The process according to claim 6, wherein the lanthanide is in a quantity, expressed as an element, ~~varying~~ from 0.5 to 20% by weight with respect to the total weight of the catalytic composition.

Claim 24 (Original): The process according to claim 23, wherein the lanthanide is in a quantity ranging from 1 to 15% by weight with respect to the total weight of the catalytic composition.

Claim 25 (Currently Amended): The process according to ~~one or more of the previous claims~~ claim 1, wherein the catalytic composition ~~of the present invention~~ contains a binder.

Claim 26 (Currently Amended): The process according to claim 25, wherein the binder is selected, from the group consisting essentially of silica, alumina, clay.

Claim 27 (Currently Amended): The process according to claim 3, wherein the ~~mixtures containing~~ alkanes, ~~and/or~~ alkenes or mixtures thereof are mineral oil fractions, or derive from the hydrogenation of mineral oil fractions, or from the hydrogenation of fractions from conversion plants.

Claim 28 (Original): The process according to claim 2, wherein the mixtures containing aromatic compounds are fractions coming from thermal or catalytic conversion plants, or mineral oil fractions.

Claim 29 (Original): The process according to claim 28, wherein said fractions are pyrolysis gasolines, fractions coming from pyrolysis gasolines or residual fractions coming from production plants of aromatic compounds and reforming.

Claim 30 (Original): The process according to claim 2, wherein the aromatic compounds are toluene, ethyl benzene, xylenes, benzene, C₉ aromatic compounds, derivatives of naphthalene and their mixtures.

Claim 31 (Original): The process according to claim 29, wherein said fractions are mixed with heavy fractions coming from fuel oil from steam cracking (FOK) or Light Cycle Oil (LCO) from fluid bed catalytic cracking.

Claim 32 (Original): The process according to claim 28, wherein the mixtures are heavy fractions coming from fuel oil from steam cracking (FOK) or Light Cycle Oil (LCO) from fluid bed catalytic cracking, previously treated to remove the asphaltenes.

Claim 33 (Currently Amended): The process according to claim 1, wherein the resulting fraction of n-alkanes ~~prevalently consists~~ are selected from the group consisting essentially of ethane, propane, n-butane and n-pentane.

Claim 34 (Currently Amended): The process according to claim 33, wherein the fraction of n-alkanes containing from 2 to 5 carbon atoms ~~ranges~~ comprises from 50 to 90% by weight of the resulting product.

Claim 35 (Original): The process according to claim 1, carried out in the presence of hydrogen at a pressure ranging from 5 to 200 bar, at a temperature ranging from 200°C to 700°C.

Claim 36 (Original): The process according to claim 35, carried out in the presence of hydrogen at a pressure ranging from 25 to 100 bar, at a temperature ranging from 300°C to 600°C.

Claim 37 (Original): The process according to claim 35, carried out at a weight ratio H₂/charge ranging from 0.1 to 1.4.

Claim 38 (Original): The process according to claim 37, carried out at a weight ratio H₂/charge ranging from 0.1 to 0.7.

Claim 39 (Original): The process according to claim 35, wherein a paraffin is used as diluent.

Claim 40 (Currently Amended): Catalytic compositions comprising:

- a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, metals of group VIII, Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt,
- b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,

with the exclusion of a catalytic composition comprising at least one lanthanide, at least one metal belonging to group VIII and a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B.

Claim 41 (Original): The catalytic compositions according to claim 40, additionally containing one or more lanthanides.

Claim 42 (Currently Amended): A process for preparing the catalytic composition according to claim 40, which comprises treating the zeolite with a compound of the element Me ~~by means of~~ with ion exchange or impregnation, drying and calcining.

Claim 43 (Currently Amended): A process for preparing the catalytic composition according to claim 41, which comprises treating the zeolite with a lanthanide compound, treating the product ~~thus obtained~~ with a compound of the element Me, drying and calcining.

Claim 44 (Currently Amended): The process according to claim 43, wherein the lanthanide is inserted in the zeolite in acidic form by ~~means of~~ ion exchange, optionally calcining the product thus obtained, depositing the element Me ~~is then deposited~~ by ion exchange, and drying and calcining the product ~~obtained is dried and calcined~~.

Claim 45 (Currently Amended): A process for the production of linear alkanes containing less than ~~at least~~ 6 carbon atoms from mixtures containing aromatic compounds having a structure with at least 6 carbon atoms, in presence of hydrogen, using a catalytic composition consisting of:

- a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, mixed with one or more metals of group VIII,
- b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,
- c) one or more lanthanides.

Claim 46 (Currently Amended): A catalytic composition consisting of:

- a) at least one element Me selected from the group consisting essentially of Zn, Mo, Cu, Ga, In, W, Ta, Zr, Ti, mixed with one or more metals of group VIII,
- b) a zeolite selected from Y-zeolite and Y-zeolite modified by partial or total substitution of the Si with Ti or Ge and/or partial or total substitution of the aluminum with Fe, Ga or B,
- c) one or more lanthanides.

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Docket No. 294865US
Preliminary Amendment
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Claims 47-48 (Canceled).

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